

SYSTEM FOR HIGH-SPEED PRODUCTION OF HIGH QUALITY LASER-INDUCED DAMAGE IMAGES INSIDE TRANSPARENT MATERIALS

ABSTRACT OF THE INVENTION

The system for high-speed production of high quality laser-induced damage images inside transparent materials is disclosed. One or more embodiments of the invention disclose a system, which produces the said images by the combination of an electro-optical deflector and means for moving the article or focusing optical system. The combination of the said devices together with using of two laser beams allows increase the image production speed substantially, without the image deterioration. One or more embodiments of the invention disclose a system for creation of a laser-induced damage by generation of breakdowns at several separate centers by using the computing phase hologram, the phase structure of which is calculated so that the laser beam, passing through the hologram, is focused at several spots. One or more embodiments of the invention disclose a system for creation of a laser-induced damage by generation of breakdowns at area where two laser beams intersect. This decreases the image deterioration conditioned by the use of a deflector and allows to create etch points with different brightness for different directions.